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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,964	12/02/2003	Robert P. Jurgilewicz	LT/166	4362

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FISH & NEAVE IP GROUP
ROPES & GRAY LLP
1251 AVENUE OF THE AMERICAS
FL C3
NEW YORK, NY 10020-1105

EXAMINER

LAM, TUAN THIEU

ART UNIT PAPER NUMBER

2816

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/726,964	Applicant(s) JURGILEWICZ ET AL.	
	Examiner Tuan T. Lam	Art Unit 2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-32 is/are allowed.
- 6) ☒ Claim(s) 1-17, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 18-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action responds to the amendment filed 8/17/2004. Claims 1-32 are under examination. The drawings filed 8/17/2004 has been approved.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of a comparator circuit in claim 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claim 18 is objected to because of the following informalities: it is suggested to change "fourth" in line 8 to --fourth--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1-10 and 28-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the recitation of "said ground terminal" in line 7 lacks proper antecedent basis.

In claim 28, the recitation of "third sub circuits" in line 3 lacks proper antecedent basis.

Claims 2-10 and 29 are indefinite because of the technical deficiencies of claims 1 and 28.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 11, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Sweeney et al. (USP 5,550,486). Figure 3 shows a circuit for pulling down an output node comprising an input node (Vin), a ground terminal (-Vss), a first sub circuit (50, 51) coupled to said input node, said ground terminal, and said output node, said first sub circuit comprising a first NMOS transistor (50) having a first threshold voltage, a second NMOS transistor (51) in a compound configuration with said first NMOS transistor, wherein said second NMOS transistor has second voltage threshold substantially equal to said first voltage threshold and said first sub circuit provides a first current path from said ground terminal to said output node when said first and second NMOS transistors are ON, and a second sub circuit (42) coupled to said input node, said ground terminal, and said output node, said second sub circuit comprising a third NMOS transistor (42) having a third threshold voltage that is greater than the first and second threshold voltage (column 6, lines 45-46), wherein said second sub circuit provides a second current path from said ground terminal to said output node when said third NMOS transistor is ON as called for in claims 11, 14 and 16.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney et al. (USP 5,550,486). Figure 3 shows a circuit for pulling down an output node comprising an input node (Vin), a ground terminal (-Vss), a first sub circuit (50, 51) coupled to

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said input node, said ground terminal, and said output node, said first sub circuit comprising a first NMOS transistor (50) having a first threshold voltage, a second NMOS transistor (51) in a compound configuration with said first NMOS transistor, wherein said second NMOS transistor has second voltage threshold substantially equal to said first voltage threshold and said first sub circuit provides a first current path from said ground terminal to said output node when said first and second NMOS transistors are ON, and a second sub circuit (42) coupled to said input node, said ground terminal, and said output node, said second sub circuit comprising a third NMOS transistor (42) having a third threshold voltage that is greater than the first and second threshold voltage (column 6, lines 45-46), wherein said second sub circuit provides a second current path from said ground terminal to said output node when said third NMOS transistor is ON.

Sweeney et al. reference does not specify the first and second threshold voltages to be in the range as called for in claims 12 and 13. It is known in the art that the range of threshold voltages of the first and second transistors determined the level of supply voltage noted to be insufficient. Thus, dependent upon an environment where the circuit is used, desired level of power supply insufficient will be notified. The range of the threshold voltage of the first and second transistors will be chosen. Therefore, outside of non-obvious results the specific range of the first and second threshold voltages will not be patentable under 35USC 103(a).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney et al. (USP 5,550,486). Figure 3 shows a circuit for pulling down an output node comprising an input node (Vin), a ground terminal (-Vss), a first sub circuit (50, 51) coupled to said input node, said ground terminal, and said output node, said first sub circuit comprising a first NMOS transistor (50) having a first threshold voltage, a second NMOS transistor (51) in a compound

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configuration with said first NMOS transistor, wherein said second NMOS transistor has second voltage threshold substantially equal to said first voltage threshold and said first sub circuit provides a first current path from said ground terminal to said output node when said first and second NMOS transistors are ON, and a second sub circuit (42) coupled to said input node, said ground terminal, and said output node, said second sub circuit comprising a third NMOS transistor (42) having a third threshold voltage that is greater than the first and second threshold voltage (column 6, lines 45-46), wherein said second sub circuit provides a second current path from said ground terminal to said output node when said third NMOS transistor is ON.

Sweeney et al. reference does not show first and second transistors coupled to the input node via a resistor as called for in claim 15. However, it is known in the art that resistor attenuates an undesired surge in a signal amplitude (Ohm's law $V = IR$). Therefore, it would have been obvious to a person skilled in at the time the invention was made to couple first and second transistors the input node via a resistor for the purpose of reducing signal surge thus protect the gate terminals of the first and second transistors.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney et al. (USP 5,550,486). Figure 3 shows a circuit for pulling down an output node comprising an input node (V_{in}), a ground terminal ($-V_{ss}$), a first sub circuit (50, 51) coupled to said input node, said ground terminal, and said output node, said first sub circuit comprising a first NMOS transistor (50) having a first threshold voltage, a second NMOS transistor (51) in a compound configuration with said first NMOS transistor, wherein said second NMOS transistor has second voltage threshold substantially equal to said first voltage threshold and said first sub circuit provides a first current path from said ground terminal to said output node when said first and

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second NMOS transistors are ON, and a second sub circuit (42) coupled to said input node, said ground terminal, and said output node, said second sub circuit comprising a third NMOS transistor (42) having a third threshold voltage that is greater than the first and second threshold voltage (column 6, lines 45-46), wherein said second sub circuit provides a second current path from said ground terminal to said output node when said third NMOS transistor is ON.

Sweeney et al. reference does not specify the third threshold voltage to be in the range as called for in claim 17. It is known in the art that the range of threshold voltages of the third transistor determined the level of supply voltage noted to be insufficient. Thus, dependent upon an environment where the circuit is used, desired level of power supply insufficient will be notified. The range of the threshold voltage of the third transistor will be chosen. Therefore, outside of non-obvious results the specific range of the third threshold voltage will not be patentable under 35USC 103(a).

Allowable Subject Matter

7. Claims 1-10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

8. Claims 28-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 18-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 30-32 are presently allowed.

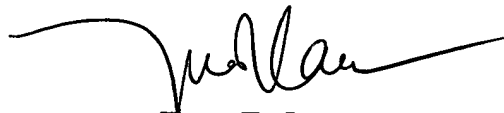
Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan T. Lam
Primary Examiner
Art Unit 2816

1/4/2005